

WHAT IS CLAIMED IS:

Sub
C1
1. ~~A method of optimizing the topology of the IEEE 1394 serial bus~~
having a plurality of nodes each with communication ports, comprising the steps of:

prioritizing said nodes according to the number of said ports and the
5 transmission speed;

connecting a non-used port of the node of the first priority with a port of the
node of the second priority; and

repeating the previous step until all of said nodes are connected together,
~~whereby said nodes are connected through said ports according to priority order.~~

Sub
C1
2. A method as defined in Claim 1, wherein the step of prioritizing is
performed so as to firstly assign higher priority to the node of greater transmission
speed, and then to secondly assign higher priority to the node having greater number
of said ports.

Sub
C2
15 3. ~~A method of optimizing the topology of the IEEE 1394 serial bus~~
having a plurality of nodes each with communication ports, comprising the steps of:

comparing the total port number of all of said nodes with a reference value
varying with the number (N) of said nodes to determine whether the prerequisite for
constructing said topology is satisfied;

prioritizing said nodes according to the number of said ports and the
20 transmission speed when said prerequisite is satisfied;

connecting a non-used port of the node of the first priority with a port of the node of the second priority;

repeating the previous step until all of said nodes are connected together; and

separating the last connected node to assign to the node of the foremost
5 priority among the next speed group higher priority than the separated node when
no port remains in the node of the first priority to connect with the node of the
second priority during the previous step, whereby said nodes are connected through
said ports according to priority order.

Sub 10 4. A method as defined in Claim 3, wherein the step of comparing
determines that the prerequisite for constructing said topology is satisfied if the total
port number of all of said nodes is equal to or greater than $2(N-1)$.

5. A method as defined in Claim 3, wherein the step of prioritizing is
performed so as to firstly assign higher priority to the node of greater transmission
speed, and then to secondly assign higher priority to the node having greater number
15 of said ports.